

Remarks

The undersigned attorney thanks the Examiner for a most courteous and useful interview, in which the applicants' position was expressed and understood by the Examiner with respect to several issues. The accompanying amendments and following remarks are addressed only to the independent claims in the case since the patentability of dependent claims depends thereon. An RCE and a petition for a one month extension of time are filed herewith.

1. This Amendment is in response to the Office Action of June 1, 2007; claims 1-14 and 17-19 and new claim 22 are present for consideration.

2,3. Claims 1, 2, 6-10 and 13-14 are rejected as anticipated by Taniguchi, for the reasons discussed in the previous Office Action. With respect to increasing cell capacitance, in the response to arguments at the center of page 4 of the Office Action, the Examiner maintains that Taniguchi is inherently capable of increasing capacitance. However, this is the first time that this rationale has been presented and it is therefore respectfully urged that applicants should be able to respond.

Increased capacitance is not inherent since column 10, lines 31-45 describes that increased capacitance is achieved by wetting in a mineral acid solution and heating at a controlled electrical potential. Therefore, Taniguchi would not have that feature unless those extra steps were performed, which Taniguchi does not perform or teach.

Also, the Examiner objects to "functionality" of the capacitance language in claims 1 and 8. This is the first time that this rationale has been presented and it is respectfully submitted that applicants should be allowed to respond to it. In claim 1, the language "for increasing capacitance of the cell" is part of the means-plus-function language "hydrophilic phase means for facilitating liquid transfer...and for increasing capacitance of the cell." The same is not true in claim 8; and the capacitance language cannot be cancelled in claim 8 since that would broaden the coverage beyond that which the claims had within two years following issuance of the subsisting patent. Therefore, claim 8 has been made dependent on claim 1, thereby containing all of the limitations of claim 1, and therefore not impermissibly broadening the coverage. This is a permissible amendment under MPEP 1412.03 II since claim 1 has not been broadened and claim 8 must contain all the limitations of claim 1. Claim 1 is patentable since Taniguchi does not teach increasing the capacitance by treating a contact bi-layer.

Claim 1 is also patentable because Taniguchi does not have both the -philic/-phobic bilayer and a substrate layer. In the center of page 5 of the Office Action, it is stated that Taniguchi teaches the porous substrate layer since he forms his bilayer on a cloth substrate (carbon or other material), which then constitutes the bilayer on a substrate. This is the first time this rationale has been presented, so applicants should be able to respond.

The term "substrate" is to be given the plain meaning that it has in the subject application, rather than elsewhere; in this case, all of the dictionary definitions which relate in any way to the subject matter hereof indicate that a substrate layer is a layer upon which something else may be built or reside. Examples of the dictionary definitions were provided to the Examiner at said interview. When properly construed, the substrate is a layer separate from the bilayer. Furthermore, if the substrate of Taniguchi is within the bilayer, then there is no other substrate external of the bilayer. Therefore, Taniguchi does not teach a "bilayer supported on a porous substrate layer" as called for in claim 1.

Referring to the top of page 4 of the Office Action, what applicants insist upon is that although Taniguchi does teach a bilayer; it does not teach a bilayer supported on a separate substrate layer. The last sentence of the first full paragraph on page 4 is correct. However, Taniguchi does not teach that the two-phase single layer, the bi-layer, is supported on a porous substrate layer.

For the foregoing reasons, reconsideration and allowance of claim 1 over Taniguchi is respectfully requested. Claims 2-14 depend from claim 1 and are patentable for the same reasons; reconsideration and allowance thereof is respectfully requested.

4,5. Claims 3-7, 10-12 and 19 are rejected as obvious over Taniguchi in view of Lindstrom. Claims 3-7 and 10-12 are patentable as depending from claim 1 as set forth in paragraphs 3, 4 hereinbefore. Claim 19 has been amended to better define the membrane electrode assembly, and to define the water transport plates as porous.

On the bottom of page 5 of the Office Action dated June 7, 2006, the Examiner points out that the claims do not require that the water transport plate be porous. The Declaration of Carl A. Reiser, filed with the Response on November 2, 2006, describes in paragraph 19 that this application discloses "porous water transport plates" at 2:7 and at 3:8. Reiser also states that the term "water transport plate" has never referred to anything that is other than

porous and at least partially hydrophilic. Since no credence was given to that Declaration, it is believed proper to allow the applicants to amend claims 17 and 19 to add the word "porous" to make it clear that only a "porous water transport plate" is involved in claim 19 (and claim 17). None of the references have a porous water transport plate.

In the rejection of claim 19 (page 4 of the Office Action dated January 4, 2006) it is stated that the anode and cathode of Taniguchi read on the claimed anode support plate and cathode support plate of claim 17 (presumably also of claim 19). Claim 17 requires support plates which contact the MEA, not the membrane. The proposed amendment to claims 17 and 19 completes the definition of MEA, by adding the cathode and anode to the membrane. This language, "a polymer electrolyte membrane disposed between an anode and a cathode" is supported in Fig. 2 as described at 5:27 - 5:46. Also, the description "membrane electrode assembly" is known in the prior art to include membrane, anode and cathode. For instance, Fugelvand, of record, defines a "membrane electrode diffusion assembly 150" as having "a solid proton conducting electrolyte membrane 151...and...individual catalytic anode and cathode electrodes 161 and 162" (Fig. 26; 26:57-63). By completing the definition of the membrane electrode assembly as including the anode and cathode, the anode and cathode of Taniguchi cannot read on the claimed anode support plate and cathode support plate because, as amended, the support plates of claims 19 and 20 are in contact with the anode and cathode of the membrane electrode assembly.

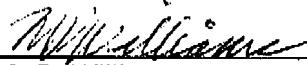
As amended, claim 19 also requires "a porous water transport plate adjacent each said hydrophilic substrate layer" which neither Taniguchi nor Lindstrom disclose. Therefore, reconsideration and allowance of claim 19 over Taniguchi and Lindstrom is respectfully requested.

6. Claims 17 and 18 are rejected as obvious over Taniguchi in view of Fugelvand. Claim 17 requires a porous water transport plate adjacent to each said hydrophilic substrate layer. The prior art discloses only solid separator plates for the reactant gas streams. Therefore, reconsideration and allowance of claims 17 and 18 (which depends from claim 17) is respectfully requested.

To save the Examiner considerable time when this case is taken up, a short phone call is recommended should any issue herein still be unresolved. A few minutes on the phone could clarify a point, or result in a supplemental response which would further limit or dispose

of issues. A five minute phone call can save the Examiner a lot of work. Such a phone call would be deeply appreciated.

Respectfully submitted,



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Date: October 1, 2007